

CORRECTED VERSION

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
12 May 2005 (12.05.2005)

PCT

(10) International Publication Number
WO 2005/042188 A1

- (51) International Patent Classification⁷: **B22D 19/00**,
17/00
- (21) International Application Number:
PCT/US2004/034504
- (22) International Filing Date: 20 October 2004 (20.10.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/512,827 20 October 2003 (20.10.2003) US
60/612,800 27 September 2004 (27.09.2004) US
- (71) Applicant (for all designated States except US): **MAGNA INTERNATIONAL, INC.** [CA/CA]; 337 Magna Drive, Aurora, Ontario L4G 7K1 (CA).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **WERNER, Mark** [CA/CA]; 5985 Abbott Street, LaSalle, Ontario N9J 3L6 (CA). **SKSZEK, Timothy, W.** [US/US]; 5473 Countryside Drive, Saline, MI 48176 (US). **HORTON, Frank,**

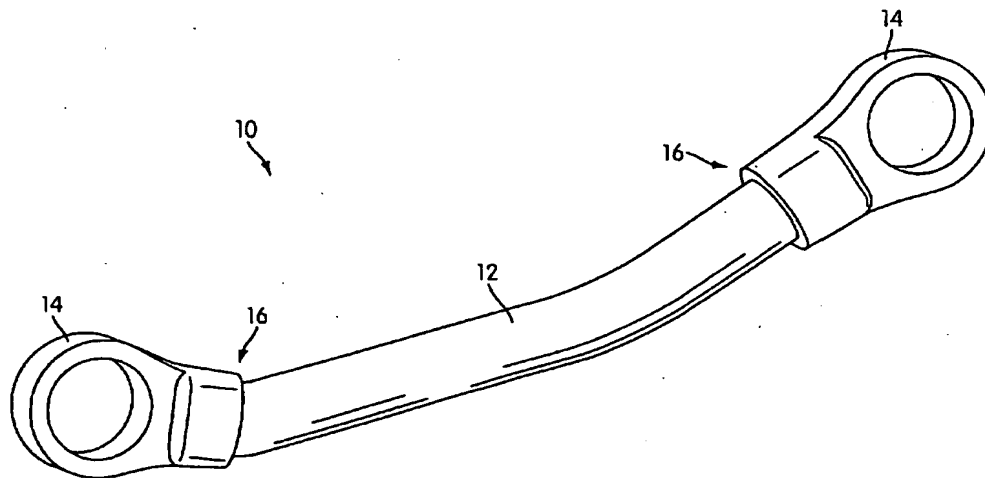
A. [US/US]; 1993 Chalmers Drive, Rochester Hills, MI 48309 (US). **YOUNG, Warren** [CA/US]; 1237 Dickens Drive, Troy, MI 48083 (US). **MELLIS, Jeffrey, J.** [US/US]; 3905 Quarton Road, Bloomfield Hills, MI 48302 (US). **GABBIANELLI, Frank** [US/CA]; 2336 Lillian, Windsor, Ontario N8X 4B3 (CA). **LANGLOIS, Erryn, L.** [US/CA]; 2336 Lillian, Windsor, Ontario N8X 4B3 (CA). **KOTAGIRI, Seetarama** [US/CA]; c/o Magna International Inc., 337 Magna Drive, Aurora, Ontario L4G 7K1 (CA). **EGLE, DeWayne, D.** [US/CA]; c/o Magna International Inc., 337 Magna Drive, Aurora, Ontario L4G 7K1 (CA). **KISELIS, Gregory** [US/CA]; c/o Magna International Inc., 337 Magna Drive, Aurora, Ontario L4G 7K1 (CA). **SULISZ, Daniel** [US/CA]; c/o Magna International Inc., 337 Magna Drive, Aurora, Ontario L4G 7K1 (CA).

(74) Agents: **HILLIARD, Thomas, P.** et al.; Pillsbury Winthrop LLP, P.O. Box 10500, McLean, VA 22102 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

[Continued on next page]

(54) Title: HYBRID COMPONENT



(57) Abstract: A hybrid component for lightweight, structural uses, including a steel member formed of a high strength steel; and a cast coupling member cast on a portion of the steel member by casting-in-place a semi-solid aluminum about the portion of the steel member, thereby positively and rigidly securing the coupling member to the steel member. A method of forming a hybrid component for lightweight, structural uses, including: forming a steel member formed of a high strength steel into a predetermined configuration; and casting a coupling member on a portion of the steel member by casting-in-place a semi-solid aluminum about the portion of the steel member, thereby positively and rigidly securing the coupling member to the steel member.

WO 2005/042188 A1



AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

(48) Date of publication of this corrected version:

28 July 2005

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,

(15) Information about Correction:

see PCT Gazette No. 30/2005 of 28 July 2005, Section II

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.